



Review Article

A systematic review of the evidence on the effect of parental communication about health and health behaviours on children's health and wellbeing

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ABSTRACT

Parents report feeling unsure how best to talk with their children about sensitive health topics and may avoid such conversations; yet if children have questions or concerns about their health, talking to a parent could enhance their health and wellbeing. We investigated the effects of parental communications about health and health behaviours on children's health and wellbeing, and explored what strategies can encourage parents to communicate about health. We conducted a systematic review and narrative synthesis of research published between January 2008 and April 2020 from five databases. Of 14,007 articles identified, 16 met inclusion criteria focusing on five topics: diet and weight ($n = 5$), body image ($n = 2$), sexual health ($n = 7$), physical activity ($n = 1$) and bullying ($n = 1$). Positive child outcomes were associated with positive general parent-child communication characterised by warmth, openness and allowing children choice. Conversely, hostility, negative and inconsistent messaging were associated with poorer outcomes. Interventions to increase parent-child communication could be classified as providing single directive messages, media campaigns or intensive support. Single messages increased communication frequency; media campaigns and intensive interventions showed mixed outcomes. No differences in outcomes were found according to child's gender or socio-economic status. Generally, parents were less confident in initiating, rather than continuing, conversations and were more likely to initiate conversations when they felt they had good topic knowledge. While the relatively small, diverse sample limits the strength of these findings, this review provides provisional support for approaches to promote positive parent-child communication about health that are associated with better child health and wellbeing.

1. Introduction

The prevalence of childhood obesity has risen rapidly over the past few decades (Ng et al., 2014), and there are indications that this has been exacerbated by limited opportunities for physical activity and changes in eating patterns during the COVID-19 pandemic (Browne et al., 2021; Patterson et al., 2021). Excess weight in childhood is linked with negative physical and psychosocial consequences in both the short and long term (Sharma et al., 2019; Simmonds et al., 2015). In response, many countries have instigated child weight monitoring programmes as part of childhood obesity strategies that inform parents of their child's

weight status, with the expectation that parental awareness of their children's weight status is necessary before any appropriate actions can be taken by parents to support their child to achieve or maintain a healthy weight status, including accessing children's weight management services (Henderson et al., 2015; Park et al., 2014; Schönbeck et al., 2011). However, these initiatives have commonly been met with lack of engagement and/or resistance from parents (Grimmett et al., 2008; Statham et al., 2011), in part through parental concerns that talking about weight and letting a child know they are overweight may risk triggering eating disorders or undermining children's health and wellbeing (Gillison et al., 2014; Gillison et al., 2016).

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The challenge of engaging parents raises two questions: firstly, whether parents are right to be concerned that discussing their child's weight status with their child could have a negative impact on their child's wellbeing; secondly, whether parents' positive engagement in children's weight management activities could be increased if public health practitioners are able to provide guidance on engaging children positively in discussions about their weight. A lack of research currently limits the ability to adequately address these two points, and thus the aim of the present study is to explore whether research from other health domains can help to provide reassurance and guidance for parents while more specific research in this area catches up. Research in other areas shows some common causes of parental concern that support this approach; for example, evidence shows that despite parents recognising the importance of their role in educating and influencing their children in health domains including weight management (Hesketh et al., 2005), sexual health (Morawska et al., 2015), alcohol use (Mynttinen et al., 2020) and tobacco smoking (Harakeh et al., 2005), they also report many common barriers to talking about such topics with their children. These include low confidence in their ability to have such conversations, lack of knowledge of the topic, embarrassment and fear of harming their children by saying the wrong thing (Falconer et al., 2014; Robinson et al., 2017; Syrad et al., 2015). In order to help parents to communicate with their children about health and health behaviours it therefore seems necessary not only to provide parents with information on the health topics, but also to offer guidance on how to discuss them in positive ways that are supportive of their children's health and wellbeing.

The risks and benefits of talking to children about weight

Parental concern regarding discussing children's weight may have some support from research. Evidence shows that both teasing children about their weight and negative weight talk from family members (e.g., criticising one's own or others' weight, saying that someone should avoid doing something or dressing a certain way because of their weight) are associated with unhealthy eating behaviours and poorer physical and psychosocial health in both the short- and long-term (Bauer et al., 2013; Eisenberg et al., 2003; Hunger and Tomiyama, 2014; Keery et al., 2005; Puhl et al., 2017). A review and meta-analysis of the impact of parents' weight-related talk found that weight criticism and teasing from parents is associated with dysfunctional eating among girls, and encouragement to lose weight is associated with poorer child health and wellbeing (Gillison et al., 2016). However, this review also highlighted that interventions aiming to promote positive parent-child communication about weight had beneficial effects on child health and wellbeing. Although there were too few studies in the review to establish a definitive direction of causality between communication practises and child behaviours, health and wellbeing, or to evaluate the effects of different types of parent-child communication, it seems plausible that the type of weight communication (positive or negative) will influence the impact on children's health and wellbeing. Only four of the included studies tested the direction of causality or differential effects, and all but one represented small parts of larger studies in which support was provided to parents or children as part of a wider programme (Gillison et al., 2016). Thus, the type of conversations that child weight measurements are likely to stimulate between parents and children – that is, when a parent initiates a discussion about a child's weight – are not visible in the research literature.

The English National Child Measurement Programme (NCMP) makes no recommendations to parents on whether or not they should talk to their children about weight (Public Health England, 2020). The template results letter for the NCMP emphasises to parents that the results are only communicated to parents, not to children, and it is a parent's decision whether or not to talk to their child about their child's results. However, there is no evidence about the potential consequences of avoiding all communication about weight with children as compared to

opening a discussion, especially when children may be aware through their own observation or elsewhere (e.g., teasing from peers) that they are heavier than other children their age. Evidence from the field of child mental health shows the potential harm from not communicating with children about topics that may worry or distress them, such as bullying (Lereya et al., 2013) or a parent's ill health (Dalton et al., 2019); avoiding communication can increase children's anxiety, leading them to form inaccurate and harmful beliefs about themselves as well as engage in problem behaviours (e.g., risky health behaviours, aggression). Furthermore, systematic review evidence shows that weight-related interventions for children that involve parents are more successful than those without parent participation (Niemeier et al., 2012); parental involvement is likely to require weight-related communication.

Parental influences on health behaviours from other health domains

Parents are an important influence on many children's health behaviours. This influence can be direct, such as providing nutritious food (Anzman et al., 2010) and opportunities for physical activity (Gustafson and Rhodes, 2006), or indirect, for example by passing on health beliefs to their children or modelling health behaviours (Tinsley, 1992). There is evidence that both types of influence continue beyond early childhood and throughout adolescence: for example, the children of parents who eat more unhealthy snack foods (modelling behaviour) are in turn more likely to eat unhealthy snack foods, while the children of parents who have a healthy food intake eat more fruit and vegetables (Brown and Ogden, 2004). Throughout adolescence, direct parental influence is perhaps surprisingly more predictive of adolescents' substance use and sexual involvement than that of their peers (Wang et al., 2007). Verbal communication is also an important mechanism for parental influence, which again can be direct (e.g., giving specific information, encouragement or instructions to their child) or indirect (e.g., when a child overhears their parent expressing enthusiasm or lack of motivation for exercise). More frequent or open communication between parents and children about health topics has been associated with various positive health behaviours among children, including safe sexual conduct (DiClemente et al., 2001), healthy eating (Herzer et al., 2011) and physical activity (Savage et al., 2009). However, currently there is little evidence on how to encourage frequent, open communication between parents and children about health topics, and specifically about weight.

Synthesising the evidence across domains

This study aims to bring together the available evidence on the promotion of positive parent-child communication across sensitive health and wellbeing topics, in order to identify common factors that may translate from one health domain to others. While our primary motive is to inform the process of providing guidance for parents in talking to children about weight, it is equally relevant to other health behavioural domains. The following research questions were investigated:

1. What are the effects of parental communications about health and health behaviours on children's health and wellbeing?
2. What strategies can be used to encourage parents to communicate with their children in a positive way about health and health behaviours?

2. Methods

Design

The research design was a systematic review (Tricco et al., 2015), following a protocol published on PROSPERO on 1st July 2020 (CRD42020176024). It is reported here in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

statement guidelines (Page et al., 2021). As this study did not involve primary data collection, institutional review board approval was not required.

Search strategy

Five databases (Embase, MEDLINE, PsycINFO, ERIC and Web of Science) were searched in April 2020, capturing papers published between January 2008 and April 2020. The complete search terms can be found in Supplementary file 1 and were chosen to identify literature relating to parents/caregivers, children, communication and health.

Identification of relevant evidence and data extraction

Identified references were uploaded to EPPI-R v.4 software (Thomas et al., 2010) for screening and data extraction following the removal of duplicates. Inclusion and exclusion criteria are given in Box 1. The references were first screened for 'noise' (those that are deemed completely irrelevant) based on the title and abstract (AT, EG, and two other members of the research team – KV and SC). All ambiguous cases were retained for further consideration. A second screening on title and abstract was then conducted; first, EG, KV and FG all screened a sub-sample of 10% to ensure consistency, resolving discrepancies through discussion, before EG and KV continued to screen the remaining references.

Full text screening and data extraction were conducted in tandem by EG, with FG also screening and extracting a sub-sample of 10%. Extracted data included general information about the article (publication year, country, type of publication, authors), study characteristics (aims, design, behavioural/health domain), population and setting characteristics for both parents and children (age (of children), gender, number in sample, ethnicity, weight status (of children), socio-economic status indicators, inclusion/exclusion criteria, any other relevant information), intervention characteristics (theory-based, duration, structure, techniques, participants, target behaviour), quality criteria and outcomes.

Quality appraisal and data synthesis

Included studies were assessed for quality and risk of bias by EG using seven items from the Critical Appraisal Skills Programme checklists (Critical Appraisal Skills Programme, 2018a, 2018b, 2018c) appropriate to the type of study. Items were answered with 'yes' (1 point), 'no' or 'cannot tell' (both 0 points); studies scoring 6 or more were deemed of 'strong' quality, 4–5 were 'moderate' quality and 3 or less were 'weak' quality. No studies were excluded on the basis of quality, but the rating noted alongside the findings to qualify interpretations.

A narrative synthesis was conducted, informed by the guidance

framework for narrative synthesis published by Popay et al. (2006). Extracted data were first tabulated by EG to develop a preliminary synthesis of the factors deemed relevant for the review. The resulting tables were then used by EG and FG to identify patterns of results within and between studies. Summaries of the identified content that addressed each of the research questions were then reported.

3. Results

After duplicates were removed, 14,007 records were identified of which 16 were retained following screening (see Fig. 1 for PRISMA flow diagram). Characteristics of the included studies, a summary of their findings and their quality ratings are shown in Table 1. The included articles reported seven intervention trials, five observational studies and four qualitative studies, focusing on five topics: diet and weight ($n = 5$), body image ($n = 2$), sexual health ($n = 7$), physical activity ($n = 1$) and bullying ($n = 1$). The studies took place in Australia ($n = 2$), Canada ($n = 2$), the UK ($n = 2$) and the US ($n = 10$). Three of the included studies (Blitstein et al., 2012; Randolph et al., 2017; Stone et al., 2017) provided complete descriptions and were rated 'strong'; the remainder provided insufficient detail on the sample or study protocols and were rated 'moderate' (Bassett-Gunter et al., 2017; Berge et al., 2014; Chisholm et al., 2011; Davis et al., 2013; Edwards et al., 2017; Edwards and Reis, 2014; Evans et al., 2009; Hart and Chow, 2019; Kichler and Crowther, 2009; Lester et al., 2017; McPherson et al., 2018; Morawska et al., 2015) or 'weak' (Park et al., 2018).

Associations between parental communication style and children's health and wellbeing

Four observational studies (Berge et al., 2014; Chisholm et al., 2011; Hart and Chow, 2019; Kichler and Crowther, 2009) reported child health or wellbeing outcomes as a result of parent communication in the domains of diet and weight (Berge et al., 2014), or body image (Chisholm et al., 2011; Hart and Chow, 2019; Kichler and Crowther, 2009). Positive parent-child communication, characterised by warmth, openness and allowing children choice (e.g., in what to eat) was associated with children's positive dietary health behaviours and wellbeing (Berge et al., 2014; Chisholm et al., 2011; Hart and Chow, 2019). One cross-section observational study reported that family meal times that involved positive parent-child communication were associated with lower likelihood of child overweight/obesity than meal times that did not include such positive communication (Berge et al., 2014); furthermore positive general family communication showed more association with children's weight than food-specific communication (Berge et al., 2014). Positive body talk (e.g., expressing contentment with one's body) between mothers and daughters in an experimental setting was associated with lower levels of self-reported body dissatisfaction among under- and healthy weight daughters, but showed no relationship with

Box 1

Inclusion and exclusion criteria.

Inclusion

Studies involving parents/primary caregivers of primary school-aged children (aged 4–12 years), published in the English language. Intervention studies, observational studies, qualitative and quantitative designs and analysis of secondary data. Interventions met eligibility criteria if they provided guidance, support or training to parents on how to talk to children about their health and health behaviours.

Exclusion

Studies reporting on clinical samples or children with special needs. Retrospective studies, reviews, protocols and dissertations/theses. Communication about parents' own health concerns, rather than the health of the child, and disease specific health and wellbeing (e.g., cancer) were excluded.

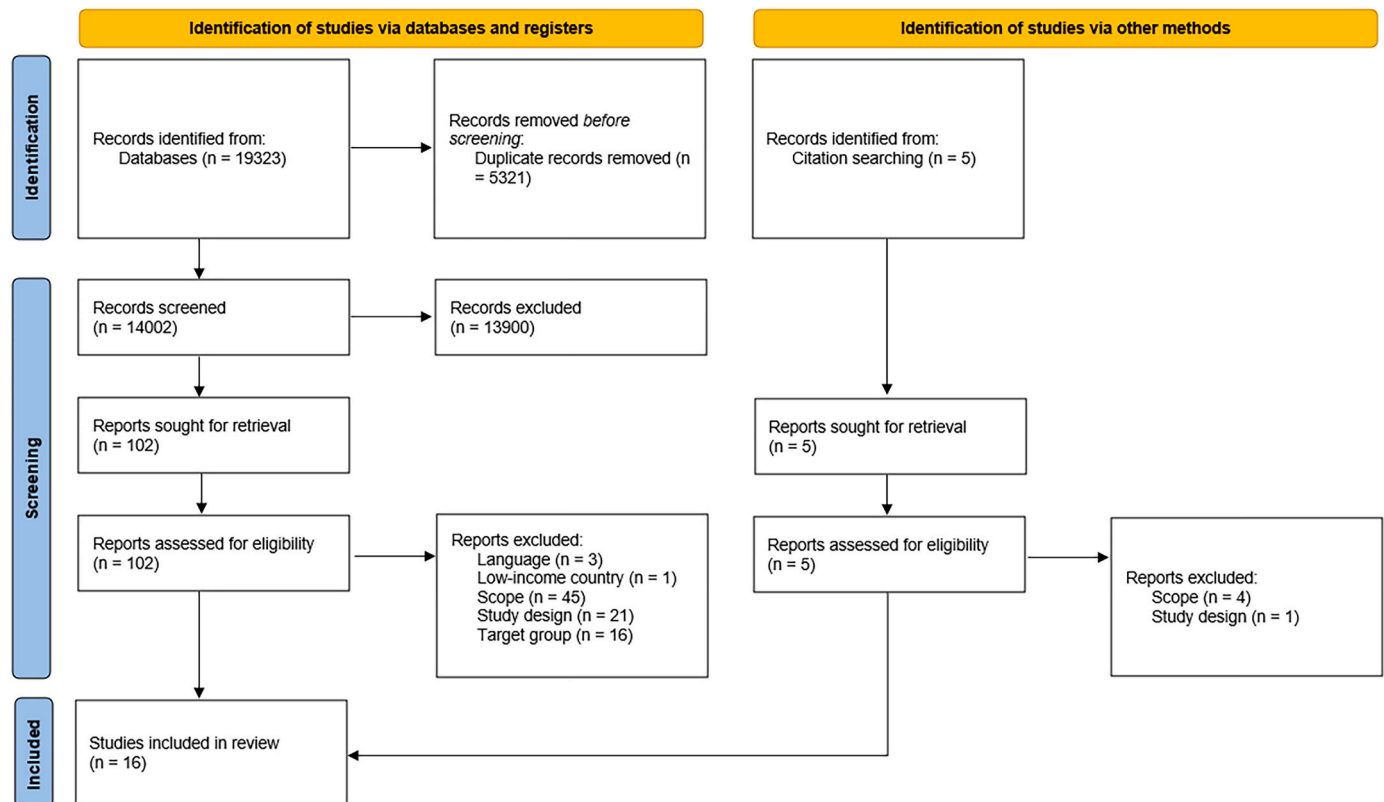


Fig. 1. Screening process flow diagram (adapted from (Page et al., 2021)).

body dissatisfaction among daughters with overweight/obesity (Hart and Chow, 2019).

Negative parent-child communication, characterised by hostility, expressing dissatisfaction and controlling statements, was generally associated with children's poorer dietary health behaviours and well-being. General hostility and inconsistent messages from parents during family mealtimes were associated with greater likelihood of child overweight/obesity (Berge et al., 2014). Negative body talk from mothers was associated with greater body dissatisfaction (Hart and Chow, 2019; Kichler and Crowther, 2009) and higher body mass index (BMI) (Kichler and Crowther, 2009) among daughters.

There were contrasting findings in relation to the association between eating disorder symptoms and discussion about body image; Kichler and Crowther (2009) found increased problem eating behaviours among girls (9–12 years) to be associated with higher BMI and more negative body communication from family members, but Hart and Chow (2019) found no association regardless of weight status in a sample of girls (10–18 years).

Similar associations between negative communication and poorer child outcomes were found across the two topic areas in which this was studied (diet and weight, and body dissatisfaction). Only one study (Hart and Chow, 2019) was conducted with older children (10–18 years); all other studies focused on children <12 years), so firm conclusions regarding age differences cannot be made. Only one study included fathers (Berge et al., 2014), although fathers accounted for only 8% of this parent sample. Both studies on body dissatisfaction included only daughters. One study (Berge et al., 2014) focused on families from low-income households, the other studies involved families from a range of economic backgrounds but did not report comparisons in outcomes according to deprivation level. While there is little data from which to draw conclusions based on socioeconomic status, similar associations between negative communication and child outcomes were found across studies.

Outcomes of interventions to increase parent-child communication

Seven intervention studies (Bassett-Gunter et al., 2017; Blitstein et al., 2012; Davis et al., 2013; Edwards et al., 2017; Evans et al., 2009; Lester et al., 2017; Park et al., 2018) reported findings on ways to increase parent-child communication about health and health behaviours. Three specific techniques for promoting parent-child communication were identified in the intervention studies:

Technique 1 - Single exposure to directive messages (i.e., prompting parent-child communication)

Four intervention studies showed that a single exposure to simple messages in multi-format adverts ($n = 3$) or presented experimentally (i.e., in controlled settings; $n = 1$) encouraging parents to talk with their children led to increased frequency of parent-child communication in the domains of physical activity (Bassett-Gunter et al., 2017) and sexual health (Blitstein et al., 2012; Davis et al., 2013; Evans et al., 2009). All of these studies relied on parent self-report and included both mothers and fathers of boys and girls. The study on physical activity found that the frame of messaging (gain or loss) around child physical activity did not affect communication outcomes (Bassett-Gunter et al., 2017).

Technique 2 - media campaigns

Greater exposure to messages promoting parent-child communication on sexual health via mass advertising campaigns (TV, radio and print) increased the likelihood of parent-child communication up to a point (i.e., once a certain level of communication had been reached, further booster messages had no effect) (Blitstein et al., 2012; Davis et al., 2013). Fathers were less likely to communicate with their children about sexual health than mothers (Blitstein et al., 2012; Davis et al., 2013), but more likely to report increased parent-child communication in response to intervention (Blitstein et al., 2012; Davis et al., 2013; Evans et al., 2009); however, fathers were also found to be less likely to pay attention to mass advertising messages promoting parent-child

Table 1
Characteristics and summary results of included studies.

Author and year	Design	Participants	Study summary	Key findings
Bassett-Gunter et al. (2017)	RCT Quality rating: Moderate	222 parents of 5–11 year old children (184 mothers, 38 fathers). 78% white, 64% had income >\$75,000 CAD and 81% completed higher education. Country: Canada	Domain: Physical activity Messages presented to parents online, either gain-framed (GF; i.e. highlighting the benefits of children's activity and parental support), loss-framed (LF; i.e. highlighting the negative consequences of children's inactivity and lack of parental support) or mixed-framed (MF; i.e. containing both GF and LF messages). Measures of attitudes towards, and support for their child's activity, plus parent's and child's current activity levels before and immediately after viewing the message, and again 4 weeks later.	A single exposure to persuasive messages promoting child physical activity and parental support for child activity can increase parental support behaviours at one-month follow-up. GF, LF and MF messages were equally effective at changing parents' self-reported support behaviours. Repeated messaging is needed to sustain improvements in attitudes, and this may lead to greater behaviour change. Limitations Items on communication not differentiated from other supportive behaviours. Sample already supportive of physical activity. Family mealtimes that were enjoyable, warm and where family communication was open and friendly, were associated with less likelihood of overweight/obesity in children. Mealtimes with more hostility, silences, inconsistent discipline, lecturing about food and parental indulgence (i.e. giving children an inappropriate degree of control) associated with greater likelihood of child overweight/obesity. Most factors associated with children's weight were general rather than food-related dynamics.
Berge et al. (2014)	Cross-sectional observation Quality rating: Moderate	120 parent-child pairs; children were 6–12 years old, 47% girls. 92% of parents were mothers. 73% were in low income households. 78% were black or African American, and 65% had finished high school but not attended college. Country: USA	Domain: Diet and weight Families video recorded mealtimes over 8 days to record the impact of family dynamics on children's weight status. Questionnaires recorded child's diet, and food usually available in the home. Recordings scored on factors such as warmth, group enjoyment, controlling behaviour; several of these factors related to food and health-related communication.	Limitations Only included mothers, cannot infer causality from cross-sectional sample Fathers who viewed the adverts went on to communicate more with their children than those who did not. Adverts had no effect on mothers. Overall, mothers communicated more with children than fathers did both at baseline and 18 months.
Blitstein et al. (2012)	Non-randomised Quality rating: Strong	1969 parents (57% mothers) of 10–14 year olds. 85% white, a range of educational and employment statuses deemed to be representative of the general US population. Country: USA	Domain: Sexual health Evaluation of adverts used in the <i>parents speak up National Campaign</i> promoting parent-child communication on sexual health; e.g., a radio advert featured an age-appropriate youth letting their parents know that it is okay to talk to them about sex and urging them to "talk early and often." Parents viewed adverts (including videos, radio clips and text) online just after the baseline questionnaire and immediately before completing other questionnaires; after 4 weeks, 6 months, 1 year and 18 months.	Limitations Only measured communication frequency, rather than quality
Chisholm et al. (2011)	Cross-sectional observation Quality rating: Moderate	40 mother-child pairs. Children aged 2–8 with type 1 diabetes (T1D), 35% girls. Participants from a range of social classes. Country: UK	Domain: Diet and weight Relationship between mothers' communication style and children's adherence to a T1D diet assessed. Mothers completed questionnaires about their child's diet and behaviour, and their communication with their child. Mothers and children video recorded completing a task to choose food for the child's birthday party - then scored for different types of communication (e.g. commands, assigning responsibility, complexity of reasoning).	Greater invitation for child to choose (i.e. allowing them some responsibility while setting limitations) associated with better adherence to diet and fewer behavioural problems Mothers of children with higher sugar diets less likely to invite them to make choices and more likely to use simple statements (rather than more complex statements, e.g., posing questions to their children). Limitations Relatively small sample with a clinical child population Only included mothers, and cannot infer causality from cross-sectional design
Davis et al. (2013)	Non-randomised Quality rating: Moderate	1804 parents (69% mothers) of 10–14-year-olds. 67% were white and 30% had a university degree. Country: USA	Domain: Sexual health Evaluation of the <i>parents speak up National Campaign</i> to promote parent-child communication on sexual health (specifically the benefits of communicating early and often with their child about delaying sexual activity) using an online survey.	Self-reported frequency of viewing TV adverts was associated with greater reported communication about sexual health with children among both mothers and fathers No effect of radio adverts Using objective measures of potential exposure to the adverts (i.e. how often and when the adverts played and when parents report

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Table 1 (continued)

Author and year	Design	Participants	Study summary	Key findings
				listening to the radio/TV), greater exposure was associated with more parent-child communication only among mothers.
Edwards and Reis (2014)	Qualitative Quality rating: Moderate	76 parents with HIV or AIDS (56% mothers) of 10–18 year old children. 72% African American, 10% college education or higher. Country: USA	Domain: Sexual health Explored the ways parents had tried and found effective in communicating with their children about sexual health and HIV.	Limitations Only measured communication frequency, rather than quality Parents perceived interactive conversations and providing child with a voice and a choice (i.e. a range of options for effective behaviours) to be effective in promoting understanding and positive communication. Summarised recommendations in 5 steps: 1. Establish a simple back-and-forth exchange, sometimes involving humour or Q&A 2. Using hands-on or visual examples 3. Quizzing child to find out what they already know or remember 4. Checking child's thoughts, feelings or questions. 5. Setting up further conversations.
Edwards et al. (2017)	Non-randomised Quality rating: Moderate	140 parent-child pairs, children 9–12 years old, 54% boys. 8% of parents were fathers. 70% were African American, all low-middle socio-economic status. Country: USA	Domain: Diet and weight Test of conversation cards, 'Fitwit', during a doctor's appointment to help parents and children to set healthy lifestyle goals for the child (e.g., to be active every day, to eat 5 portions of fruit or veg per day). Cards used during 'well child' appointments with parents and children together.	Limitations No measurement of children's experiences. Good acceptability Participants were most likely to choose goals that had been cued in the cards they viewed rather than choosing their own healthy goals Improved parent recognition of their child's weight status.
Evans et al. (2009)	RCT Quality rating: Moderate	1969 parents of 10–14-year-old children (74% mothers). 47% university degree, and 87% white. Country: USA	Domain: Sexual health Evaluation of the <i>parents speak up National Campaign</i> to promote parent-child communication on sexual health. Looked at exposure to adverts versus exposure with additional messaging on frequency of parent communication with children about sexual health Adverts were linked to a website for parents about how to talk with their child about sex.	Limitations Study assessed conversation cards that were designed to be delivered during a doctor's appointment, and not tested without a health care professional present No measure of whether parents did increase communication following intervention. The adverts encouraged both mothers and fathers to talk with their child about sexual health and to visit the parent website. No additional effect of booster messages.
Hart and Chow (2019)	Cross-sectional observation Quality rating: Moderate	100 mother-daughter pairs. Daughters were 10–18 years old. Mixed household income and ethnicity. 42% mothers were overweight, 70% daughters healthy weight. Country: USA	Domain: Body image Questionnaire completed by both mothers and daughters separately on; body dissatisfaction and eating disorder symptoms Discussions between dyads recorded about daughter's thoughts and feelings about her body, scored by researchers for the amount of positive and negative body talk.	Limitations Only measured communication frequency, rather than quality.
Kichler and Crowther (2009)	Cross-sectional observation	69 mother-daughter pairs; daughters 9–12 years old. 88% were white, no socio-economic information reported. Country: USA	Domain: Body image Questionnaire completed by both daughters and mothers on: Communication about appearance (with family members and peers), mothers' eating attitudes and behaviours, body image	Limitations Only included mothers, only records a short, relatively artificial conversation Negative communication about appearance (from both peers and family) was associated with greater body image dissatisfaction and problem eating behaviours. Compared with negative communication from family members,

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Table 1 (continued)

Author and year	Design	Participants	Study summary	Key findings
	Quality rating: Moderate		dissatisfaction, and problem eating attitudes and behaviours in daughters.	negative communication from peers was more strongly associated with body image dissatisfaction.
Lester et al. (2017)	RCT Quality rating: Moderate	1429 mother-father pairs of primary school children. Ethnicity and socio-economic data not reported but recruited from both more and less deprived areas. Country: Australia	Domain: Bullying Aim to get both parents to have more frequent and proactive conversations with their children about their social skills, ways to prevent bullying, ways to cope if they were bullied, and how to help others who may be being bullied. Comparison of a low vs high intensity intervention in schools over 3 years Low intensity including printed materials for children to take home to their parents plus some family fun days, high dose received additional workshops.	Limitations Only included mothers and daughters, cannot infer causality from cross-sectional sample High intensity intervention increased communication from both mothers and fathers about bullying with children. Limitations Only measured communication frequency, rather than quality
McPherson et al. (2018)	Qualitative Quality rating: Moderate	18 children (aged 10–17 years; 50% boys; 39% with disabilities) and 21 caregivers (81% mothers). 72% white. Country: Canada	Domain: Diet and weight Focus groups and interviews with children and their caregivers to explore perceptions and experiences of weight-related communication (mainly with healthcare professionals HCPs, but also between children and parents)	Children could/should start to take part in conversations about weight from 8 to 12 years onwards Preference for conversations to be solution-focused (i.e. focused on actions that families can take to help the child achieve a healthy weight) Preference for discussing health and growth, rather than weight and size to minimise stigma Lack of consensus on the utility and acceptability of visual materials (e.g., growth charts) and other images (e.g., cartoon-style images) Similar responses for children with and without disabilities and their caregivers, with the exception of children with autism spectrum disorder (who may need more direct, functional examples). Limitations Preferences not linked to health outcomes. Confidence associated with prior discussion with children, and topic knowledge Priorities as a focus of general parenting programmes included encouraging children's self-esteem and positive body image were felt to be very important.
Morawska et al. (2015)	Cross-sectional observation Quality rating: Moderate	557 parents (92% mothers) of children aged 3–10 years. 64% had completed higher education, 90% white. Country: Australia	Domain: Sexual health Online questionnaire recording parents' confidence and experience in discussing sexuality and sexual health-related issues with their children, and about their parenting in general.	Limitations Sample mostly white, mothers, based on self-report No effect on frequency of family dinner time conversations. Participants stressed that their limited budgets, time constraints, family cooking preferences (such as frying), and poor local food environment were still barriers to them preparing healthy family meals and eating together as a family. Limitations Small study with no comparison group Only measured communication frequency, rather than quality Fathers' confidence was greater if they had a good existing relationship Initiating conversations challenging Uncertainty in judging whether their sons were ready to discuss topics.
Park et al. (2018)	Non-randomised Quality rating: Weak	13 parents/ caregivers-child pairs (children aged 8–12 years). All from an 'underserved' area. 46% were African-American. Country: USA	Domain: Diet and weight Evaluation of a weekly practical family session aiming to encourage families to make and eat healthy meals together and communicate positively during family meals. Delivered in 4 weekly sessions including practical cooking lessons, games and taught content plus printed resources for families to take home.	Limitations Small study with no comparison group Only measured communication frequency, rather than quality Fathers' confidence was greater if they had a good existing relationship Initiating conversations challenging Uncertainty in judging whether their sons were ready to discuss topics.
Randolph et al. (2017)	Qualitative Quality rating: Strong	29 African-American fathers of sons aged 10–15 years. 10% of fathers had a university degree. Country: USA	Domain: Sexual health Focus groups with the fathers explored the facilitators and barriers to communication about sexual health with their sons.	Limitations

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Table 1 (continued)

Author and year	Design	Participants	Study summary	Key findings
Stone et al. (2017)	Qualitative Quality rating: Strong	110 parents/ caregivers (75% mothers) of children aged 4–7 years. 67% white British. Mixed socio-economic status. Country: UK	Domain: Sexual health Focus groups to explore experiences of parents who had discussed sexuality and sexual health with their young children	No measurement of children's experiences Preferences not linked to health outcomes Initiation of communication with children at an early age was thought to reduce the risk of a topic becoming taboo/children seeking information from untrusted sources. Limitations No measurement of children's experiences.

communication (Davis et al., 2013). There was no evidence on the impact of media campaigns on other domains.

Technique 3 - intensive intervention

The impact of intensive interventions (involving direct contact from an intervention provider) was mixed. One intensive intervention for parents involving workshops and information resources about bullying led to increases in reported parent-child communication and, for fathers only, increased confidence that they could influence their children's decisions on responding to bullying (Lester et al., 2017). However, an intensive intervention for families on healthy eating involving weekly group sessions (each session lasting over 2 h 30 min) and printed resources that aimed to encourage families to cook, eat and talk together did not increase positive family communication; participants in this study were from deprived households and felt the intervention did not help them overcome barriers such as time constraints (Park et al., 2018). The use of conversation cue cards to help facilitate parent-child communication about weight and health were found to help parents and children (aged 9–12 years) to discuss and set healthy behaviour goals. However the study tested their use as part of a consultation with a health professional, so while they could be used independently, they were not tested in that way (Edwards et al., 2017).

Of the studies reporting findings on increasing parent-child communication, two intervention studies focused on parents of primary school aged children (4–11 years) (Bassett-Gunter et al., 2017; Lester et al., 2017), the rest involved parents of children of a slightly older age range (8–14 years). There were no apparent differences in study outcomes according to age of children involved. Two studies recruited samples from deprived populations (Edwards et al., 2017; Edwards and Reis, 2014; Park et al., 2018; Randolph et al., 2017), one study had a mixed sample in terms of deprivation levels (Stone et al., 2017) and one study did not report deprivation status data (McPherson et al., 2018); there were no apparent differences in findings according to deprivation status.

Those studies that reported the outcomes of interventions across families in different socio-economic groups (Blitstein et al., 2012; Davis et al., 2013; Evans et al., 2009; Lester et al., 2017) did not find socio-economic status to moderate communication outcomes. One of the qualitative studies (Randolph et al., 2017) included only fathers of sons aged 10–15 years; the other three studies involved both mothers and fathers (but had a majority of mothers) of sons and daughters. There were no apparent differences in findings according to the gender of parent or child.

Factors associated with confidence and willingness to initiate conversations with children

The remaining observational (Morawska et al., 2015) and qualitative (Edwards and Reis, 2014; McPherson et al., 2018; Randolph et al., 2017; Stone et al., 2017) studies did not provide the outcomes of communication interventions but do provide insight into parents' perspectives on communicating about health and wellbeing with their children, which could help inform the development of interventions to promote communication.

Parents showed less confidence in initiating conversations with their children than they did continuing a conversation once started (Morawska et al., 2015; Randolph et al., 2017; Stone et al., 2017). Confidence was also greater when parents felt more knowledgeable about a topic (Morawska et al., 2015). In both the domains of sexual health and weight, parents perceived 'open communication', which they defined as occasions when children feel able to ask questions and parents respond openly and honestly, to be important for establishing trust (Edwards and Reis, 2014; McPherson et al., 2018; Randolph et al., 2017; Stone et al., 2017). Within individual studies there was no consensus among parents as to the appropriate age at which to initiate discussions with a child about weight (McPherson et al., 2018) or sexual health (Stone et al.,

2017). There was consensus among participants in all studies that individual factors (e.g. culture, existing health conditions) should be taken into account when deciding what to say. There were also mixed views on the use of resources (e.g., leaflets, growth charts) with children to aid discussion (Edwards and Reis, 2014; McPherson et al., 2018); some parents found these useful whereas others felt they could be stigmatising.

4. Discussion

To the best of our knowledge, this is the first review to bring together research on parent-child communication about sensitive health topics and wellbeing. Our broad search strategy across five databases provides an overview of the available evidence on parent-child communication across health and wellbeing topics.

While the review included a broad range of study designs, few intervention studies have been conducted that can provide definitive evidence of more and less effective means of communicating about sensitive health topics with children, so our findings are largely reliant on observational studies. Nonetheless, the available research indicates that positive parent-child communication characterised by warmth and openness, is associated with positive child health and wellbeing, while negative communication, characterised by teasing and hostility, is associated with poor child health and wellbeing. The results align with the extensive literature on general parenting styles; authoritative parenting, whereby parents show warmth and responsiveness to children and foster their autonomy, has repeatedly been associated with more positive child outcomes, for example in physical activity (Davids and Roman, 2014), dietary behaviours and weight (Vollmer and Mobley, 2013), academic achievement (Masud et al., 2015), and mental health (Gorostiaga et al., 2019). Within the domain of children's weight, there was some indication that general positive conversations and parenting could have a stronger impact on health outcomes than specific weight-related conversations (Berge et al., 2014).

More evidence was available on how to increase parent communication with children than on what form this communication should take. The seven intervention studies included in this review indicated that parental exposure to messages promoting parent-child communication on health and wellbeing topics can be effective, either as a single exposure or repeated via media campaigns. Two studies reported on intensive interventions that included guidance, support or training to parents on talking with their children about health and wellbeing as part of a larger package of support (Lester et al., 2017; Park et al., 2018); the findings were mixed and challenging to separate from the other elements of the complex interventions. However, these studies were reliant on parental self-report outcomes and did not assess the quality of communication or impact on child health and wellbeing. Future research should aim to employ objective measures of the quantity and quality of parent-child communication pre- and post-intervention, as well as objective assessment of health and wellbeing outcomes in the short- and long-term.

Evidence from the qualitative research provides some direction as to what future interventions may need to target in order to increase parent-child health communication; for example, parents' knowledge of a topic was important for determining their confidence to communicate, including knowledge about acceptable language to use and what behaviours to advise their children to adopt for their health. This is supported by evidence from other health domains that has also highlighted the importance of knowledge and confidence for initiating health communication and behavioural change across a variety of domains (Ajzen et al., 2011; Bull and Dale, 2021; Byrne et al., 2006). Future research should investigate how best to build parents' knowledge and confidence in communicating with their children about health topics; it is likely that different approaches, tailored to parents' individual needs, will be necessary. It is also noteworthy that research so far has focused on parents initiating communication with their children about health

topics; it would be interesting to explore ways to encourage children to initiate discussion about health issues that may worry or interest them, as well as exploring how best to prepare parents for these conversations.

Limitations

There are some limitations to this review as a result of the research retrieved and included in this review. The research was heterogeneous in relation to health topic, intervention components and study design, making it difficult to draw conclusions regarding the impact of health topic, child's age, sex of child or parent, or family socio-economic status on parent-child communication. Several of the studies within this review recruited participants from a range of socio-economic and ethnic backgrounds but did not investigate differences in findings according to these factors.

To address our first research question on the effects of parent-child health communication on children's health and wellbeing, we found only cross-sectional studies, which precludes inferring causality. It is possible that parents' communication is responsive to their children's health and wellbeing rather than the other way round. It is also not possible to isolate the impact of parent-child communication from other communication and influences on children's health and wellbeing (e.g., health education received in school, teasing from peers). The strength of our findings is limited by the relatively small number of studies included, the majority of which were of moderate quality. The pool of studies included was limited to published work available in English, as we did not search the grey literature.

Directions for future research

Future research on parent-child health and wellbeing communication should seek to ensure that potentially moderating demographic factors are explored in order to best design interventions for specific population groups. In particular, fathers are typically under-represented in research on parenting (Davison et al., 2016). This was echoed in the current review: while some included studies specifically recruited mothers (particularly in relation to mother-daughter interactions on body image), those that sought to recruit both mothers and fathers typically recruited a majority of mothers. In light of the findings that mothers and fathers may differ in how they communicate with their children and respond to interventions (Blitstein et al., 2012; Davis et al., 2013; Evans et al., 2009), more research is merited to understand how best to support both fathers and mothers. More research is also needed on the association between types of parental communication and body dissatisfaction in sons.

Insight into the barriers that parents report to initiating conversations around health indicates that parents' confidence and perceived knowledge of a topic may be an important precursor to their engaging with their child. Research to explore how to build this knowledge and confidence in an acceptable format, and the impact that such interventions have on the frequency and quality of interactions would be valuable; this could be done through parental exposure to simple promotional messages or more intensive interventions and may be a necessary pre-cursor to action. Parents' emotional responses present another barrier to initiating communication in the weight domain; information that a child is overweight can invoke feelings of shame, anger and disbelief (Gillison et al., 2014; Nnyanzi et al., 2016). When people are in heightened emotional states their responses to information and advice differ from when dealing with information in an unemotional state. Early research has investigated whether it is possible to diffuse negative reactance through, for example, narrative messaging (Gillison et al., 2020). More research would be useful to investigate how better to support parents at emotional times or to explore whether changing the timing of support to when initial emotional responses have abated could be beneficial.

Overall, the literature in this area shows a trend towards focusing on

the frequency of parent-child communication as a primary outcome, rather than the *quality* of parent-child interactions, and its impact on children's health and wellbeing. However, without evidence on the quality of interactions we cannot be confident that increased frequency is always a positive outcome. In part this focus may be as parent-child communication is often part of an intervention and not considered as an intervention in itself. Expanding the focus of research that aims to increase the amount of communication to incorporate indicators of quality and child experience would provide greater insight even within those trials already attempted. Furthermore, this review has highlighted that parenting and communication styles are likely to have moderating effects on the relationship between parent-child communication and child outcomes; incorporating assessment of parenting and communication style in future studies would be helpful to provide better understanding of these complex interactions.

Conducting research in this area can be challenging as it requires getting parents to participate in research on sensitive topics and finding parents to be willing to be randomised to a condition where they may have concerns about the potential for harm to their child's wellbeing (i. e., if they believe talking about sensitive topics is harmful). Therefore, sharing learning across domains to maximise the knowledge transmission from all available research is important. This may help to improve our understanding by highlighting common processes underlying the impact of parent-child communication across health behaviours and help to inform areas where policy may necessarily come ahead of research. Providing parents with feedback on children's weight status prompted by a successful national surveillance programme in England may be one example of this; most local authorities share the outcomes of NCMP measurements with parents, which has created an opportunity and desire to contact and intervene with parents 'now', before research has been conducted on how to provide fully comprehensive support to parents at a population scale. Finally, by sharing examples from different domains, as well as proven clinical practice of approaches shown to be positive or do no harm, we may be able to allay some of parents' concerns to design trials in new settings.

Conclusion

This review shows that positive parent-child communication on sensitive health topics, showing warmth, responsiveness and openness, is associated with positive child health and wellbeing. While some of our findings relate to where there are gaps in the evidence base, the evidence that is available can be used to help design guidance for parents on how best to communicate with their children about health and wellbeing, as well as directing future research to address gaps in the evidence.

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Declaration of Competing Interest

Authors have no conflicts of interest to report.

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Appendix A. Supplementary data

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